

NW 110th Project Goals and Objectives

May 3, 2001

Where: Project area is in the NW portion of the city. Along NW 110th, from 3rd Avenue NW to Greenwood Ave NW. Project area is within right-of way only, and all work will be outside of street. The site has a combination of slopes, ranging from 1-8%.

Problem Statement: The 21-acre drainage basin collected and conveyed along 110th contributes high flows (18 cfs for the 25-year storm) and pollutants to Pipers Creek. Additionally the culvert under 3rd Ave NW experiences overtopping from flows from NW 110th.

Project Description: This project addresses local neighborhood drainage improvements. This project will redesign and configure the current asphalt lined drainage ditch and culvert system to address the objectives described below.

Objective: Provide alternative drainage improvements achieving water quantity, water quality benefits, while meeting stormwater conveyance and pedestrian and vehicle safety standards. Provide these improvements at minimum cost. Goals below are listed in decreasing order of priority.

Goal 1: Establish and adhere to Safety Standards

Maximum depth of standing water criteria: 1-foot

Maximum time of standing water: 24-hours after storm-event ends

Have SEATRAN explain vehicle recovery distance guidelines and follow if possible.

Achievement: Involve SDOT (formerly SEATran) throughout the design phase of the project and during construction for any changes.

Goal 2: Assure conveyance of 25-yr, 24-hr storm through full length of project, including culvert under 3d Ave NW.

Method: Assess conveyance capacity of culvert. If culvert is undersized, provide culvert replacement plan.

Achievement: Replaced culvert under 3rd Ave NW to assure conveyance of 25-year, 24-hour storm.

Goal 3: Provide Detention

Option A: Detain flows generated by full drainage basin to reduce 2-year, 24-hr storm to predeveloped forested till conditions. (Roughly 1-acre foot)

Option B: Provide maximum volume of detention during 2-year, 24-hr storm. At minimum detain flows from adjacent residence and street.

Method: Surface detention, detention pipes under surface system as cost allows

Achievement: (option B) The volume is roughly equivalent to detaining the flows from the street area adjacent the project (1603'*60', assuming 85% imperv.) to predeveloped forested conditions

Goal 4: Provide Water Quality Improvement as an added benefit

No set criteria of treating full water quality storm (6-month, 24-hr)

Method: Provide maintenance accessible sedimentation cells. Provide maximum vegetated flow path as site allows.

Achievement: Involved DWW Operations and Maintenance in the design, assuring a design that is serviceable by DWW crews.

Achievement: Provided 501 feet of swale length out of a total of 1063 feet of project length (which includes existing alleys, sidestreets, and driveways)

Achievement: Provided a total of 350 feet of the 501 foot total that is greater than or equal to the minimum width requirement of 7.5 feet for water quality.

Goal 5: Minimize project costs

Method: Design project to minimize construction costs.

Achievement: Use soil wrap walls, minimize pavement cuts and amount of pipe and hard structures, use grading to achieve construction of improvement that meets the quality/quantity goals.

Goal 6: Provide aesthetic improvements in project area without creating an “attractive nuisance”

Method: Uniform vegetation down length of project. Ask homeowners preference of grass versus a more “wild” native vegetation look. Use artistic flow control method, funded by “1% for art”.

Achievement: Choices of numbers, species and sizes of plants to approximate the look of SEASstreet pilot.

Achievement: Use an artistic flow control method, with size and shape of ponds and transitions between them. Use “soil wrap” walls as a method of reducing costs and returning a more aesthetic look.

Did not utilize Seattle Arts Commission in the design process, project inception was too late for 2002 involvement by artist.

Goal 7: Maximize use of recycled materials

Method: Look for construction “waste” at scrap yards and by contacting other agencies. If post consumer products unavailable, contact manufactures for “seconds”.

Achievement: Identified construction waste and seconds at Hanson Pipe in Tacoma pre-construction. However, during construction it was determined that new product was a superior choice.

Need to educate Construction Management and Drainage/Wastewater Design Engineers on the use of recycled “seconds” for structures in right-of-way, but not in the road section.

Goal 8: Involve community

Method: Communications staff work with design team to inform and solicit input from residents. 3-dimensional modeling of project if necessary. Involve volunteer coordinator, Kathy Minch, for post construction events.

Achievement: Met with 100% of affected property owners one-on-one pre-construction. Held two community open-houses pre-construction, provided bi-weekly construction updates during construction. Involved watershed educator Beth Miller in community meetings and outreach.

Project Justification:

1. Improve management of high volume surface water entering sensitive receiving water.
2. Improve quality of urban runoff entering creek system
3. Use project as a pilot to evaluate improvements to the informal drainage system.
4. Address stormwater management problem that was identified under Greenwood preliminary engineering study and Piper Creek Phase 2 work.

Project Schedule:

1. Preliminary Engineering occurred in 2000
2. Design 2ndQ 2001 to 1stQ 2002
3. Project construction and completion Spring/Summer 2002